LAND PROCESSES DAAC
EOS SUPPORT ACTIVITIES—FY 1992

Version 0 Activities

- System-level
  - Catalog Interoperability
  - Common User Interface
  - Data Formats
  - Science Processing Library
  - Networking Enhancements
- Science Support/DAAC Advisory Panel
- Global AVHRR 1km Data Set
- Global Topographic Data Access
- Aircraft Instrument Data (TIMS/AVIRIS)
- Synthetic Aperture Radar

Attachment 4.5

Proposed Land Processes DAAC Science Advisory Panel Membership

Facility Instrument Team Members

Panel Member	Alternate
Mike Abrams (JPL - ASTER)	Simon Hook (JPL)
Chris Justice (U. of Maryland - MODIS)	Alan Strahler (Boston U)
Brian Curtiss (U. of Colorado - HIRIS)	
Diane Evans (JPL - EOS SAR)	Eric Kasischke (ERIM)

Interdisciplinary Science Investigators

Panel Member	Alternate
Robert Dickinson (U. of Arizona)	Bill Emery (U. of Colorado)
Barry Rock (U. of New Hampshire)	David Skole (U. of NH)

Non-EOS Scientists

Panel Member	Alternate
Tony England (U. of Michigan)	
Kevin Gallo (NOAA)	Dan Tarpley (NOAA)

Ex Officio Members

Robert Murphy (LPDAAC Program Scientist - NASA HQ)
Lyn Oleson (LPDAAC Data Systems Expert - USGS/EDC)

LPDAAC Project Scientist

Bryan Bailey (USGS/EDC)

LAND PROCESSES DAAC
VERSION 0 ACTIVITIES—FY 1992

Global AVHRR 1 km Data Set

- **5-Channel, 10 Bit, each Afternoon Pass, all Land Surfaces**
- **Data Acquisition Starting Mid-FY 1992 (Tentative), 18 Month Duration**
- **IMS** **Ensure Interoperable Access via Version 0 IMS**
- **DADS** **Ingest AVHRR Data Transferred from HRPT Sites, Resolve Format Issues and Develop Appropriate Metadata**

  Design and Develop Optimum Approach to Archiving
- **PGS** **Support Pre-processing of "Standard" Registered Products, Implementing Community Consensus Algorithms (i.e., Calibration Approaches) as Recommended by the MST, IGBP, etc.**

  Support Definition/Production of Higher-order Derivative Products and Porting of Associated Algorithms

Existing Data Archive

- All Data Archived Permanently on 3480 Cassette
- Data Archived in Uncorrected (Level 0) Format
- Systematic Geo-registration Parameters Appended to Image Data
- Environmentally Controlled Archival Conditions
- On-line Digital Browse Available Within 24 Hours of Data Ingest
- Microfiche Browse Available on Subscription 30 Days After Ingest
- Data Base Inquiry, Graphical Display and Data Visualization

Global Land 1-km AVHRR Data Set Project

Background

- 1-km AVHRR data are useful as pre-EOS surrogates to MODIS data and as a tool in many global change and earth science studies
- Requirements for global 1-km AVHRR data have been articulated by the IGBP, Commission of the European Communities, MODIS Land Science Team, and other groups and earth scientists
- Goals of the Global Land 1-km AVHRR Data Set Project are:
  - create and maintain a raw digital archive of full-resolution HRPT and LAC AVHRR daily coverage of all land surfaces worldwide
  - produce digital and film products optimized for earth science applications
  - distribute products on a non-discriminatory basis at the marginal cost of filling a specific user request
- The Global Land 1-km AVHRR Data Set will consist of:
  - 5-channel, 10-bit, raw AVHRR data
  - 1.1-km spatial resolution (at nadir)
  - collected continuously for 18 consecutive months beginning April 1, 1992

Global Land 1-km AVHRR Data Set Project

PHASE 1—Data Acquisition, Archiving, and Management

- Major participants are NOAA, ESA, and NASA/USGS, including key Australian HRPT stations (CSIRO coordinated)
- Highest priority activities of Phase 1 include:
  - — establish institutional agreements with participants
  - — identify formats and mechanisms for transfer of all data to USGS/EDC
  - — develop capabilities to accept different data formats and to reformat, ingest, recalibrate, and archive raw AVHRR data
  - — provide geographic identification, browse image generation, and entry of data into LPDAAC IMS
  - — establish data copy and distribution mechanisms
  - — Operationally produce orbital pass products (scene to scene stitching)

HRPT Ground Station Network

Status

European Space Agency Network (as of April 1, 1992)

Terranova Bay (seasonal Nov.-Feb.)
Oberpfaffenhofen, Germany
La Reunion (France)
Niamey, Niger
Tromso, Norway
Maspalomas, Canary Islands (Spain)

ESA Stations Under Consideration (Summer 1992)

Fortaleza, Brazil
Cachoeira Paulista, Brazil
Kuala Lumplur, Malaysia
Nairobi, Kenya
Cairo, Egypt
Manila, Phillipines

NOAA/USGS Network (As of April 1, 1992)

Fairbanks, Alaska
Wallops Island, Virginia

NOAA LAC Recorded Data (As of April 1, 1992)

Northeast Asia
Northern South America
Portion of Eastern Europe and Western Asia
Central Africa

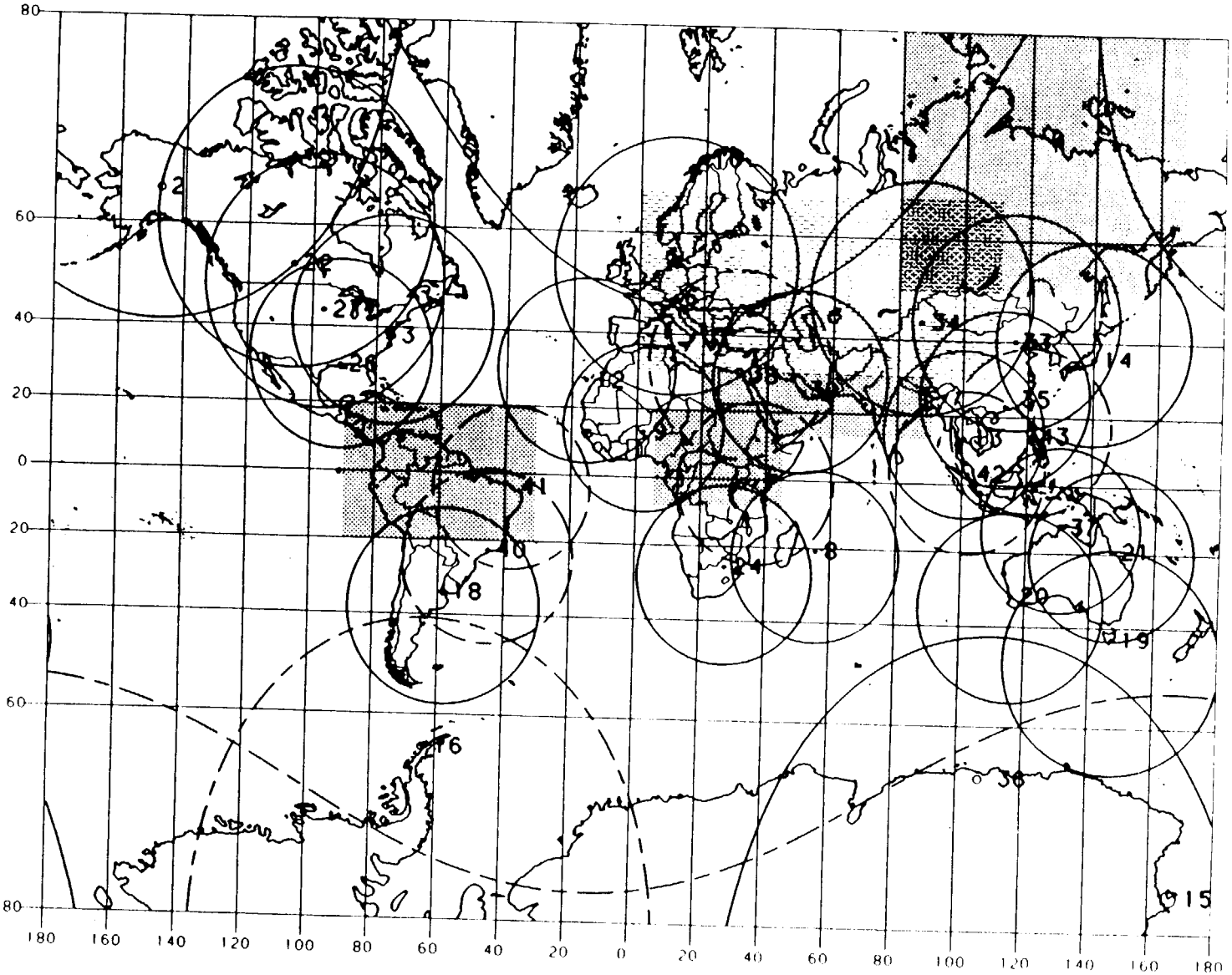
USGS/EDC Network (As of April 1, 1992)

Tokyo University, Japan
Buenos Aries, Argentina (U. of Miami)
Darwin, Australia
Hobart, Australia (CSIRO)
Perth, Australia
Townsville, Australia
Casey, Antarctica (Australia)
Prince Albert, Canada (CCRS)
Beijing, China
Urumqi, China
Guangzhou, China
Dahahran, Saudi Arabia (U.S. Air Force)
Hartebeesthoek, South Africa
Baton Rouge, Louisiana
Sioux Falls, South Dakota

USGS/EDC Stations Under Consideration (Summer 1992)

McMurdo Station, Antarctica
Palmer Station, Antarctica
Novosibirsk, CIS
Uh Snug Harbor, USA (Hawaii)
Ulan Bator, Mongolia

Global Land 1km AVHRR Data Set Project
HRPT Ground Station Network (*as of April 1, 1992*) and Acquisition Areas for LAC Recorded Data



RED: USGS Coordinated Ground Stations GREEN: ESA Coordinated Ground Stations

BLACK D/ ED LINES:
Ground Stations Acqui ata (Summer 92)

Global Land 1-km AVHRR Data Set

Project Coordination Meeting

On February 13, 1992, NASA and the USGS met with representatives from:

- University of Tokyo, Tokyo, Japan
- Saudi Center for Remote Sensing, Riyadh, Saudi Arabia
- Satellite Meteorologic Administration, Beijing, China
- Satellite Applications Center, South Africa, Hartebeesthoek, South Africa.

On February 14, 1992, NOAA and IGBP hosted the First Meeting of the HRPT Station Operators supporting the global 1-km project.

Attendance:

- NASA
- USGS
- ESA
- JRC/CEC
- Australia (CSIRO & Perth)
- Peoples Republic of China
- SCRIPPS (Antarctic)
- Univ. Tokyo
- South Africa
- NSIDC
- Saudi Arabia
- EPA

(Unable to attend: LSU, University of Miami, Hawaii AND CCRS)

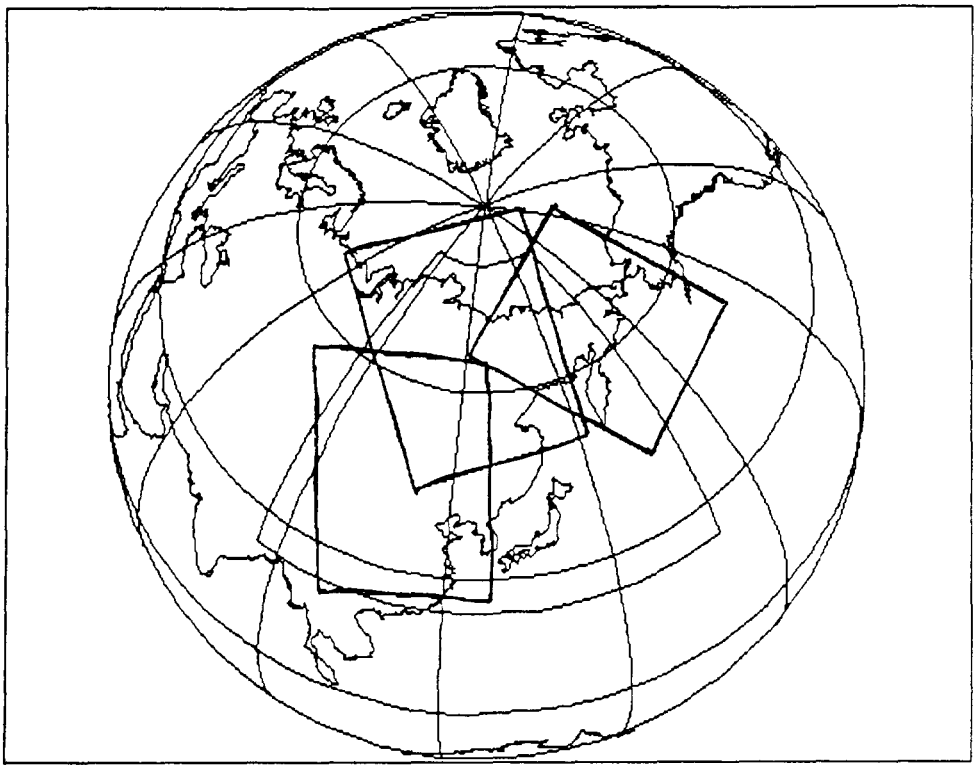
Global Land 1 km AVHRR Data Set Project

NOAA LAC Recorder Status

- Specific acquisition requests, in support of the 1-KM project, have been submitted to NOAA for Northeast Asia, Northern South America, and a portion of the Middle East. All of these areas have been given a Priority 3.

- Other acquisition requests being handled by NOAA that directly support data needs for the 1-KM project include Central Africa, Eastern Europe, and Western Asia. These are Priority 3.

- After review of NOAA's LAC/HRPT schedule for March 31—April 6, it appears that all of the aforementioned areas are getting covered on a near daily basis. And, NOAA has scheduled 9 to 11 minute acquisitions for these areas which will greatly facilitate Phase 2 derivative product processing.



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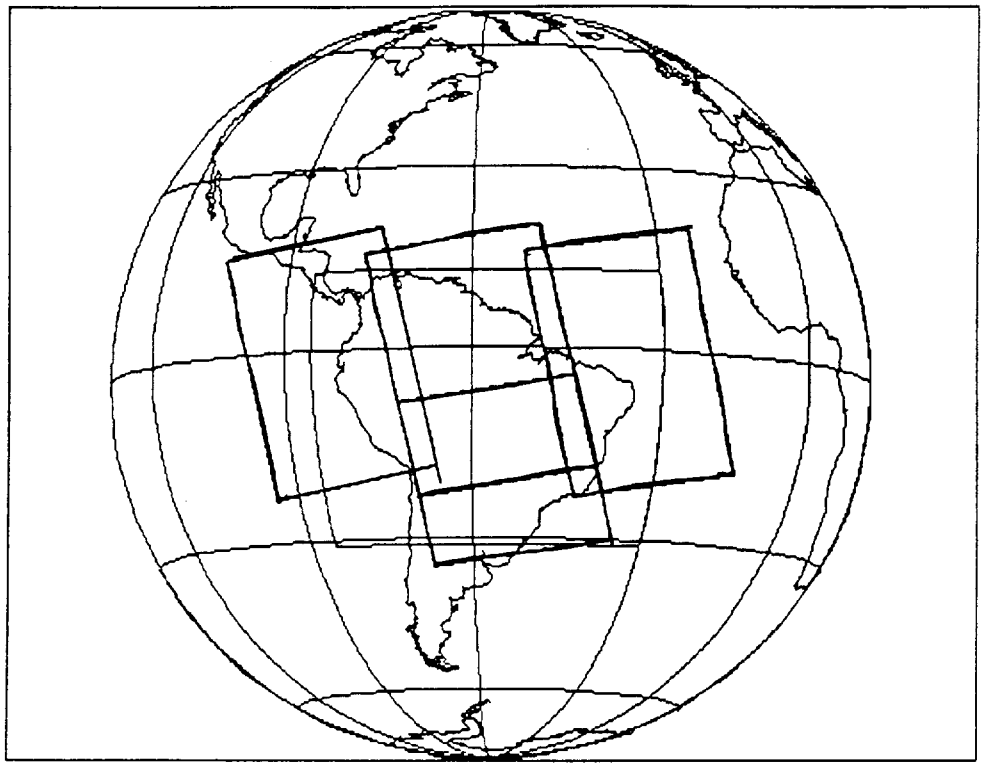

Record-ID Bro Corner Point Coordinates in Decimal Degrees — Center Coor
Entity Identifier — Meta Data...

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Global Land 1-km AVHRR Data Set Project

Summary

- As of April 1, 1992, 19 HRPT stations, plus EDC, Fairbanks, and Wallops Island stations, will be operationally acquiring daily 1-KM AVHRR data, as defined in the 1-KM Project Plan.
- NOAA LAC recorded data acquisitions have been scheduled for all areas, not covered by HRPT stations, with the exception of the Antarctic.
- Therefore, all land masses worldwide, except the Antarctic, will be covered on a daily basis starting April 1, 1992.
- Data transfers to EDC and copies to ESA/NOAA will begin in May/June.
- Alternatives for Antarctic coverage continue to be pursued.

Land Process DAAC
Version 0 Data Access

- Most data and products discussed will be archived by the Land Processes DAAC at EDC
- By 1994, available data and products will be accessible through the Version 0 IMS
- Prior to 1994, available data and products will be accessible through GLIS or a prototype Version 0 IMS
- Within existing legislative constraints, Version 0 and Pathfinder data and products will be priced in accordance with U.S. Data Management for Global Change Research Policy, which states:

  "Data should be provided at the lowest possible cost to global change researchers in the interest of full and open access to data. This cost should, as a first principal, be no more than the marginal cost of filling a specific user request."

Topographic Data Programs

Generating New Digital Topographic Data Sets

- **Develop and demonstrate capabilities to generate digital topographic data from stereoscopic remotely sensed data**
  - **— SPOT data**
  - **— JERS-1 data**
  - **— digitized aerial photography**
- **Generate and distribute, on a selective basis, DEMs derived from satellite and airborne remotely sensed data, including ASTER-like data sets**

Topographic Data Programs

Enhancing Utility of Existing Topographic Data

- **Compile and distribute regional- to continental-sized data sets, like the recent 0.5-km DEM of North America**
- **Generate and distribute raster topographic data sets from DMA's 1:1,000,000 scale vector Digital Chart of the World**
- **Develop and distribute topographic data analysis software**
- **Develop, generate, and distribute derivative products**

Topographic Data Programs

Improving Access to Existing Topographic Data

- EDC currently archives and/or provides user access to:
  - — USGS 1:250,000 scale (3-arc second) DEMs, derived from DMA DTEDs
  - — USGS 1:24,000 scale DEMs
  - — USGS 1:100,000 scale DEMS
- Pending current negotiations with DMA, the Land Processes DAAC expects to archive and distribute DTED data (or sub-sampled derivative) covering most northern hemisphere land masses
- The Land Processes DAAC is developing a comprehensive data base of globally available topographic data, as well as mechanisms to expedite user access to the data described in the data base

Airborne Sensor Data Programs

Functional Requirements

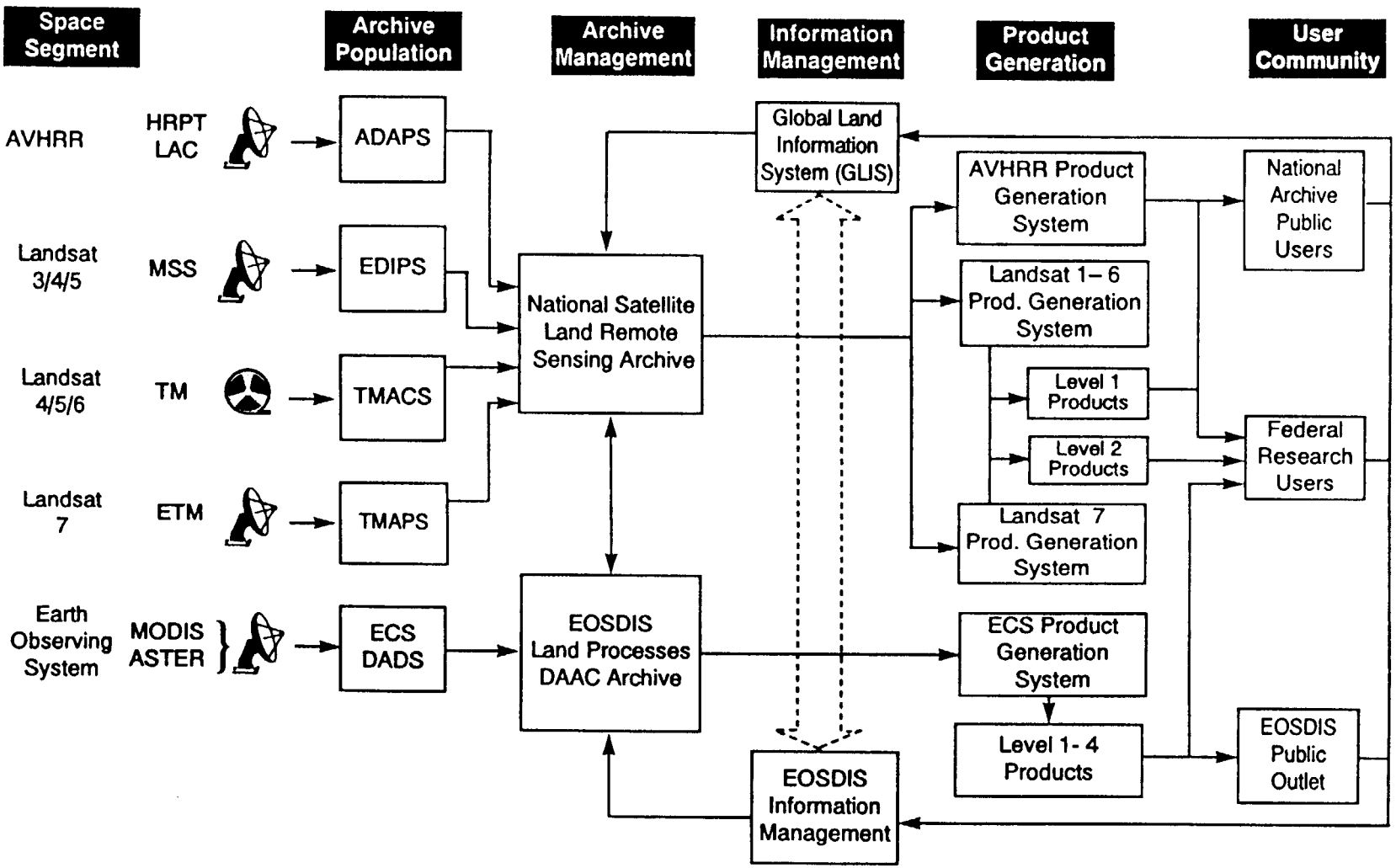
- **Establish and maintain long-term archives of TIMS/NS-001 and AVIRIS data at the Land Processes DAAC**
- **Establish and operate data processing and product generation systems to routinely process TIMS/NS-001 and AVIRIS data and to generate Level 1 and higher-order products**
- **Provide data and product query, browse, and ordering capabilities through an interactive IMS**

Airborne Sensor Data Programs

General Implementation Schedule

- **Procure archive transcription system in 1992**
- **Copy and transfer historical data archives: TIMS/NS-001 in 1992/93 and AVIRIS in 1993/94**
- **Generate metadata and capture browse images during archive transfer**
- **Procure data processing/product generation system in 1993**
- **Implement and test processing software: TIMS/NS-001 in 1993 and AVIRIS in 1993/94**
- **Commence processing and distribution of prior flight season data: TIMS/NS-001 in 1993 and AVIRIS in 1994**
- **Support development of and generate and distribute higher-order airborne sensor data products developed by EOS investigators and/or in response to other science requirements**

SATELLITE LAND REMOTE SENSING DATA MANAGEMENT



EDSPO

USGS/EDC
3-16-92